PROJECT facts
U.S. Department of Energy
National Energy Research Laboratory

Materials and Advanced Metallurgical Research
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Metallic Filters for Hot-Gas Cleanup

Project Lead
Ames National Laboratory
Ames, IA

Description
Duration: 10/1/98 - 9/30/01

The objective of this study is to design and develop metallic filters having uniform, closely controlled porosity using an unique spherical powder processing and sintering technique. The corrosion resistance of the filter materials (such as Haynes 214, Kanthal AF, and Krupp 602CA) will be evaluated under simulated PFBC/IGCC gaseous environments in order to determine the optimum alloy composition and filter structure. The corrosion tests will also provide a means to estimate the service lives of experimental filter materials when subjected to either normal or abnormal PFBC/IGCC plant operating conditions. Metallic filters are expected to offer the benefits of non-brittle mechanical behavior and improved resistance to thermal fatigue compared to ceramic filter elements, thus improving filter reliability. Moreover, the binder-assisted powder processing and sintering techniques to be developed in this study will permit additional filter design capability (e.g., highly controlled filter porosity/permeability with greatly enhanced processing simplification), thus enabling more efficient and effective filtration.

Product Support Areas

Gasification Technologies	Combustion Technologies	Sequestration	Environmental & Water Resources	Advanced Turbine & Engines	Fuel Cells
✓	✓			✓	

NETL

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